

## EXHIBIT 5

## **Kristina M. Johnson**

### **Curriculum Vitae**

**Address** Duke University  
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Durham, NC 27708-0271

**Telephone** (919) 660-5389 (Work)

**Citizenship** USA

#### **Education**

1/84 **Ph.D.** in Electrical Engineering, Stanford University. Thesis entitled "Holographic Reciprocity Law Failure with Applications to the 3-D Display of CT Medical Data."

6/81 **Master's Degree** in Electrical Engineering, Stanford University.

6/81 **Bachelor's Degree** in Electrical Engineering with distinction, Stanford University.

#### **Professional Experience**

7/99 – present **Dean**, Pratt School of Engineering and **Professor**, Department of Electrical and Computer Engineering, Duke University.

5/94 – 6/99 **Professor**, Electrical and Computer Engineering Department, University of Colorado, Boulder. Research and teaching in Fourier optics, holography, optical signal processing, liquid crystal electro-optics, liquid-crystal-on-silicon miniature displays, color management systems.

8/93 - 8/97 **Director**, National Science Foundation Engineering Research Center (ERC) for Optoelectronic Computing Systems, University of Colorado, Boulder and Colorado State University.

10/92 - 8/93 **Deputy Director**, NSF/ERC for Optoelectronic Computing Systems, University of Colorado, Boulder.

9/91 - 1/92 **Fulbright Faculty Scholar**, Department of Electrical Engineering, University of Edinburgh, Scotland.

8/88 - 5/94 **Associate Professor**, Department of Electrical and Computer Engineering, University of Colorado, Boulder.

3/85 - 8/88 **Assistant Professor**, Department of Electrical and Computer Engineering, University of Colorado, Boulder.

10/83 - 3/85 **NATO Post-Doctoral Fellow**, Trinity College, Dublin, Ireland.

8/83 - 10/83 **Visiting Scientist**, IBM Research Laboratory, San Jose, CA.  
 6/80 - 9/80 **Academic Associate**, IBM Research Laboratory, San Jose, CA.  
 6/79 - 10/83 **Research Assistant**, Stanford University.

## **Honors and Awards**

### **Scholarship**

1975 **Denver Post Hall of Fame**  
 1975 **First Place, Army Award, Second Place, Physics Division, International Science and Engineering Fair**  
 1978-1979 **Hughes Aircraft Fellowship.**  
 1983-1985 **NATO Post-Doctoral Fellow, Trinity College Dublin, Ireland.**  
 1985 **ITEK Award for Outstanding Student Paper, Soc. Photographic Science and Engineering (SPSE).**  
 1985-1990 **NSF Presidential Young Investigator Award.**  
 1985-1987 **IBM Faculty Development Award.**  
 1986 **University of Colorado at Boulder, Jr. Faculty Fellowship.**  
 1991 **Regional Emmy Nomination** for "Physics of Light" ten part educational television series and curriculum distributed to schools in the Rocky Mountain Region for 5th-8th graders, aired on NBC affiliate Channel 4.  
 1991 **Fulbright Faculty Scholar.**  
 1991-1996 **NSF Faculty Award for Women.**  
 1993 **Dennis Gabor Medal** for Outstanding Achievements in Modern Optics in the Spirit of Nobel Laureate Dennis Gabor by the Novofer Foundation for Technical and Intellectual Creation.  
 1995 **Fellow, Optical Society of America.**  
**National Academy of Engineering, Frontiers of Engineering.**  
**Honorable Mention, Best Student Paper Award, Society for Information Display.**  
 2003 **Fellow, IEEE.**  
 2003 **Women in Technology International (WITI) Hall of Fame, Inductee.**  
 2004 **Society of Women Engineers, Achievement Award.**

### **Athletics**

1975 **Red Belt, Tae Kwon Do, Intermountain Champion, Women's Team Div.**  
 1976-1978 **Field Hockey Team, Stanford University (Varsity, 1978)**  
 1977-1980 **Lacrosse Team, Stanford University, (Club Varsity, 1977-1980).**  
 1978-1981 **All-California Lacrosse Team.**  
 1985-1987 **Leinster Ireland Provincial Cricket Team.**

### **Technology Translation/ Entrepreneurship**

- 1985 **Co-Founder**, Colorado Advanced Technology Institute (CATI) Center of Excellence in Optoelectronics.
- 1994 **Photonics Spectra Circle of Excellence Award** best twenty-five products introduced in 1994. Designed 128 x 128 FLC on silicon spatial light modulator design.
- 1995-present **Co-Founder** of several start-up companies including ColorLink, Inc., KAJ, LLC, and STI, Inc.
- 1997 **State of Colorado Technology Transfer Award** (University to Industry).
- 2001 **North Carolina Council on Entrepreneurial Development (CED)**, Technology Infrastructure Award.

### **External Advisory Boards and Committees**

1. **Congressman Skaggs' Subcommittee on Space, Science and Technology (SST) Advisory Committee**, (1987).
2. **National Science Foundation Advisory Committee to The Engineering Directorate**, (1988-1991).
3. **Aerospace Industrial Association Committee on Optical Information Processing**, (1988-1990).
4. **IEEE Neural Networks Council**, (1988-1990).
5. **Board of Governors, Lasers and Electro-Optics Society (LEOS)**, (1990-1992).
6. **National Research Council, National Materials Advisory Board**, (1992-1995).
7. **ARPA OE-MOSIS Working Committee**, (1992).
8. **National Research Council Site Team Reviewer for the New York State Science Centers**, (1993-1994).
9. **NSF Engineering Education Coalition Center Blue Ribbon Site Team**, (1994-1995).
10. **Caltech NSF/ERC Scientific Advisory Board**, (1995).
11. **National Academy of Science, Committee on Optical Science and Engineering**, (1995-1997).
12. **National Science Foundation Director of Engineering Search Committee**, (1997-1998), (2002-2003).
13. **Transformation, Higher Education Advanced Technology (HEAT) at Lowry**, (1997-1999).
14. **National Science Foundation Advisory Committee to The Engineering Directorate**, (2000-2005), Chair, 2003.
15. **Proceedings of the IEEE Editorial Board** (2000-2002)
16. **Northwestern University School of Engineering Advisory Board** (2001-2003)
17. **Carnegie Mellon University School of Engineering Advisory Board** (2001-2004)
18. **Smith College Pickering School**, (2001-2002).
19. **University of Washington, Center for Engineering Learning and Teaching**, (2003-2004).
20. **Colorado School of Mines Advisory Board**, (Governor Appointee, 2003-present).
21. **Princeton University, Strategic Planning Committee, School of Engineering**, (2003).
22. **North Carolina Department of the State Treasurer, Scientific Advisory Board**

- (2002-2003).
- 23. **Science Foundation Ireland Advisory Council**, (Deputy Prime Minister Appointment, (2003-2006).
- 24. **National Academy of Engineering**, Committee on the Health of Engineering Research (2004)
- 25. **Georgia Institute of Technology**, School of Engineering, Advisory Board (2004-present)
- 26. **University of California Santa Barbara Department of Electrical Engineering**, External Review Board, January 2005.
- 27. **SPIE, the International Society of Optical Engineering**, Board of Directors (2006-present)

#### **Industrial Boards**

- 1. ColorLink, Inc., Co-founder and Board Member (1995-2002).
- 2. Minerals Technology Corporation, (2000-present) MTX: NYSE.
- 3. Dycom, Industries, (2001-2005). DY: NYSE
- 4. Southeast Techniventures (Co-founder, Ex-officio Board Member).
- 5. Guidant Corporation (2003 – 2006). GDT: NYSE
- 6. AES Corporation (2004 – present). AES: NYSE
- 7. Boston Scientific (2006 – present). BSX: NYSE

#### **Editorial and Other Professional Activities**

- 1. Editor, Optical Computing Newsletter, quarterly in Laser Focus Magazine, (1988-1990).
- 2. Symposium Chair, OSA Annual Meeting Symposium on Ferroelectric Crystals, (1988).
- 3. Guest Editor, Applied Optics Special Issue on Optical Inspection, (1988).
- 4. Advisory Editor, Optics Letters, (1991-1997).
- 5. Guest Editor, Applied Optics Special Issue on Spatial Light Modulators, (1992).
- 6. Co-Chair, LEOS Topical Meeting on Smart Pixels, Santa Barbara, California (1992).
- 7. Program Committee, LEOS Annual Meeting, (1993).
- 8. Program Committee, International Commission on Optics, Kobe, Japan (1994).
- 9. Program Committee, International Optical Computing Meeting, Edinburgh, Scotland (1994).
- 10. General Chair, LEOS Topical Meeting on Smart Pixels, Lake Tahoe, California (1994).
- 11. Program Committee, LEOS Annual Meeting (1994).
- 12. Reviewer, Applied Optics, Opt. Eng., Opt. Comm., Phot. Lett. Jour. Lightwave. Tech.
- 13. Co-Chair, International FLC Meeting, Cambridge, UK (1995).
- 14. Session Chair, OSA Topical Meeting, Salt Lake City, Utah (1995).
- 15. Session Presider, CLEO, Chiba Japan (1995).
- 16. Subcommittee Organizer, National Research Council Committee on Optical Science Engineering (1995).
- 17. Program Committee, International Commission on Optics, Seoul Korea (1996).
- 18. Program Committee, International Optical Computing, Kobe, Japan (1996).
- 19. Program Committee, Euro SID '96, UK (1996).
- 20. Program Committee, ICASS (1996).
- 21. Editor, Critical Reviews of Optical Science and Technology, Soc. of Phot. Instr. Eng. (1997).
- 22. Moderator, CLEO/QELS Product Design and Development Process (1997).
- 23. Co-Author, National Academy of Science Committee on Optical Science and Engineering, (1996-1997).
- 24. Session-Chair and Technical Committee, International Display Research Conference, Toronto, Canada, (1997).
- 25. Waterman Award Committee, Washington, DC (2000-2002) Chair, 2002.

25. Panel Chair, Joint Conference on Information Sciences Panel, Durham, North Carolina, (2002).
26. Search Committee, National Science Foundation, Engineering Assistant Director, (2002-2003).
27. Session Moderator, NIH BECON Symposium: Catalyzing Team Science, (2003).
28. Session Moderator and Presenter, SPIE 48<sup>th</sup> Annual Meeting, (2003).
29. Committee Member, Optical Society of America, Fellow Nomination Committee (2003).
30. Review Panelist, NSF Nanoscale Science Engineering Center, Reverse Site Visit (2003).
31. Panelist, North Carolina Department, State Treasurer, Economic Roundtable (2003).
32. Session Moderator, Panel on Leading in Knowledge Intensive Industries, The Coach K and Fuqua School of Business Conference on Leadership, Duke University (2003).
33. Session Moderator, Research Presentations, Duke Frontiers 2004, Connecting the University with Industry, Duke University (2004).
34. Panelist, Mentoring for academic leadership: career paths and choices, PAESMEM/Stanford School of Engineering Workshop on Mentoring in Engineering (2004).
35. Session Moderator, Panel on Leveraging Core Values to Build Trust: Who's In and Who's Out in Higher Education, The Coach K and Fuqua School of Business Conference on Leadership, Duke University (2004).
36. Participant, Technology Commercialization Forum, Washington, DC, June, 2005.
37. Keynote Panelist, MIT Emerging Technologies Conference, "Where have all the engineers gone?" September 2005.
38. Session Moderator, Panel on Power & Politics: Organizational Community Building in the Technology Start-up, The Coach K and Fuqua School of Business Conference on Leadership, Duke University (2005).

#### **University of Colorado Service (Major Committees)**

Intercollegiate Athletic Committee (IAC), (1985-1993).  
 President's Task Force on Intercollegiate Athletics, (1985-1986).  
 Vice-Chancellor's Committee on Recruitment and Retention, (1985-1986).  
 Chancellor's Committee on Salary Equity, (1985-1992).  
 Department of Athletics Mentor Program, (1986)  
 Education Director, NSF/ERC for Optoelectronic Computing Systems, (1987-1989).  
 Boulder Faculty Committee on Faculty Compensation and Benefits, (1988-1994).  
 Vice-Chancellor's Committee on Women's Issues, (1991-1994).  
 President's Academic Advisory Committee, (1991-1995).  
 President's Committee on Intercollegiate Athletic Gender Equity, (1993-1995).  
 Chancellor's Strategic Planning Committee, (1993-1993).  
 Chancellor's Task Force on Communications, (1993).  
 Director, NSF/ERC for Optoelectronic Computing Systems, (1993-1997).  
 Vice-Chancellor's Advisory Committee, Reappointment, Promotion and Tenure, (1994-1997).  
 Vice-Chancellor's Academic Planning Committee, (1995-1996).  
 Faculty Inventors' Council (1996-1999).  
 University Technology Corporation Regent Oversight Committee (1997).  
 Director, University Technology Corporation (1997-1999).

### **Duke University (Major Committees)**

Athletic Council  
President's Advisory Council on Resources (PACOR)  
Provost's Strategic Planning Team  
Engineering Academic Council  
Engineering Faculty Council (Ex-officio member)  
Dean's Cabinet  
Academic Council  
Devil Fund Board  
Women's Athletics Scholarship Committee  
Office of Science and Technology Steering Committee  
Campaign Steering Committee

### **Organizations**

Optical Society of America (**OSA**), Fellow  
International Electrical and Electronic Engineers (**IEEE**), Fellow  
Fulbright Association, Life Member  
National Research Council (**NRC**)  
Sigma Xi  
Lasers and Electro-optic Society (**LEOS**)  
Society of Photo-instrumentation Engineers (**SPIE**)  
Society for Information Display (**SID**)  
Council on Competitiveness

### **Teaching**

#### **New Courses Developed:**

1. Graduate Optics Laboratory, ECE 590, (1985).
2. Fourier Optics, ECE 569, (1986).
3. Nonlinear Optics, ECE 5906, (1989).
4. Applied Optics and Optical Instrumentation, ECEN 4916, (1989).
5. VLSI Design, ECEN 4009, (1996).
6. Introduction to Engineering (EGR10), (2000).

### **Research Contracts and Grants (P.I. and Co-P.I.)**

1. Presidential Young Investigator Award, **NSF**, \$312,000, (1985-1990)).
2. Center for Excellence in Optoelectronics, **CATI**, \$10,000, (1985).
3. Faculty Development Award, **IBM**, \$60,000, (1985-1988).
4. Optical Communications and Optical Computing, **AT&T**, \$125,000, (1985-1990).
5. Optics Research, **Ball Aerospace**, \$12,500, (1985).
6. Optical Image Algebra, **NSF**, \$47,190, (1986).
7. Colorado Consortium for Optoelectronic Research, **CATI**, \$570,000, (1986-1993).
8. Engineering Research Center for Optoelectronic Computing Systems, **NSF**, \$14,579,489, (1986-1991).



9. Optical Image Algebra, **CCRW**, \$7,500, (1986).
10. Instrumentation Request for Optical Symbolic Computing, **DOD**, \$118,000, (1986).
11. Optical Interconnects Using Volume Holograms, **DARPA**, \$253,500, (1988-1990).
12. Computing Grant, **DEC**, \$37,500, (1988).
13. Connectionist Fellowship, **GTE**, \$45,000, (1988).
14. Spatial Light Modulators, **Ball Aerospace**, \$20,000, (1988).
15. Optical Pattern Recognition, **Martin Marietta Corporation**, \$107,652, (1989).
16. FLC Tunable Filters, **Beckman Instruments**, \$82,000, (1989).
17. Optical Storage, **MMC**, \$68,000, (1989).
18. Graduate Student Support, **NSF**, \$44,000, (1989).
19. Graduate Student Training Grant, **NASA**, \$88,000, (1991-1996).
20. Faculty Award for Women, **NSF**, \$250,000, (1991).
21. NSF/ERC for OCS, Renewal, **NSF**, \$4,000,000, (1991-1993).
22. VLSI/FLC SLM's, **Draper Labs**, \$50,000, (1991).
23. Optical Bipolar Neurons, **Sharp Labs, UK**, \$40,000, (1991).
24. Faculty Development Award, **AT&T**, \$20,000, (1991).
25. NSF Equipment Grant, **NSF**, \$56,000, (1992).
26. Binary Switching Liquid Crystal on Silicon Spatial Light Modulators, **Martin Marietta Corporation**, \$450,000, (1992-1997).
27. Liquid Crystal Switches, **IBM**, \$25,000, (1992).
28. Liquid Crystal on Silicon, **BNS**, \$20,000, (1992).
29. Liquid Crystal Optical Spectrometers, **Beckman Instruments**, \$128,000, (1992).
30. Advanced Technology Program: FLC Fiber Fabry-Perot Filters, **NIST**, \$525,000, (1993-1996).
31. Analog Spatial Light Modulators Using Liquid Crystal on Silicon, **Draper Labs**, \$145,000, (1993-1995).
32. Advanced Spatial Light Modulators, **BNS**, \$51,000, (1993).
33. Smart Spatial Light Modulators, **Boeing Computer Sciences**, \$50,000, (1993).
34. Liquid Crystal Switches, **IBM**, \$25,000, (1993).
35. Fabrication of Liquid Crystal SLMs for Improved Flatness, **BNS**, \$22,000, (1993).
36. CATI/Small Business Grant, **BNS**, \$50,000, (1993-1995).
37. CATI/Small Business Grant, **MLO**, \$50,000, (1993-1995).
38. Optical Detectors for VCSELs, **PRI**, \$120,000, (1993).
39. Particle Image Velocimetry, **NSF**, \$46,000, (1993).
40. NSF/ERC Center, **NSF**, \$9,327,171, (1994-1998).
41. CCHE Center of Excellence, **CCHE**, \$840,000, (1994).
42. Academic Infrastructure Award, **NSF**, \$310,000, (1994).
43. 2000 DPI Displays, **Kopin**, \$166,000, (1994).
44. All-Optical Computing, **SAIC**, \$360,000, (1993-1996).
45. Tunable Filters, **CATI, Plume**, 20,000, (1993-1996).
46. Phase Modulators, **CATI, BNS**, \$50,000, (1994-1996).
47. Contrast Control Devices, **Ball Communications**, \$14,000, (1994).
48. Heads-Up-Displays, **Ford Research Labs**, \$120,000, (1994-1996).
49. A Two-Dimensional Peak Locating Photodetector Array for Correlation Plane Processing, **Martin Marietta**, \$14,000, (1995).
50. SAIC/CU Interconnects, **SAIC**, \$209,745, (1995-1996).
51. CATI, **State of Colorado**, \$2,400,000, (1995-1999).
52. Papsmear Quality Control Using Optical Correlator, **CYTYC Corp.**, \$56,789, (1995-1997).
53. CATI, Colorado Business Program, **KAJ**, \$50,000, (1996-1998).
54. FLC Waveguide, **BNS**, \$68,177, (1996-1998).



55. Broadband Phase Modulator, **BNS**, \$30,000, (1996).
56. Achromatic Quarterwave Plates, Colorado Business Program, **ColorLink**, \$50,000, (1997-1999).
57. Pap Smear Quality Control Using an Optical Correlator, **NIH STTR Phase II**, \$267,000, (1997).
58. Diagnostic Cytology, **CYTYC, Corp.**, \$55,000, (1997).
59. Research in Undergraduate Education Supplement, **NSF**, \$169,500, (1997).
60. REGS Program, **NSF**, \$76,142, (1997).
61. Applications of the Digital-Micromirror Display Engine in Optical Processing, **ARPA**, \$99,406, (1997).
62. Development and Institutionalization of an Optics Engineering Degree Program, **NSF**, \$400,000, (1997-2000).
63. LCOS Microdisplays, **Hewlett Packard**, \$41,000, (1997).
64. Phase I, STTR, Polarization-Independent Liquid-Crystal Fabry-Perot Tunable Filter for WDM Network Applications, **Macro-Vision Tech.**, \$29,957, (1996-1997).
65. Phase II, STTR, Polarization-Independent Liquid-Crystal Fabry-Perot Tunable Filter for WDM Network Applications, **KAJ, LLC**, \$150,000.
66. Center for Advanced Photonics Technology, **State of Colorado**, \$4,421,000.
67. BCB Processing, **AMPRO**, \$24,236, (1998-1999).
68. IGERT/OSEP, **NSF**, \$2,500,000, (1999-2004).
69. STTR, Diagnostic Cytology, **CYTYC, Corp.**, \$40,000, (2002-2003).
70. SBIR, Matchbox Display, **STI Subcontract**, \$30,000, (2003-2004).
71. Acquisition of a Visroom for Cognitive Studies, Visualization, and Education, **NSF**, \$583,000, (2004-2007).

#### **Patents Issued, Allowed and Pending**

1. Optically Addressable Spatial Light Modulators, **patent #4,941,735**, issued 7/17/90.
2. Optically Addressable Spatial Light Modulator Having a Distorted Helix FLC Member, **patent #5,073,010**, issued 12/17/91.
3. FLC Tunable Filters and Color Generation, **patent #5,132,826**, issued 7/21/92.
4. Chiral Smectic Liquid Crystal Polarization Interference Filters, **patent #5,231,521**, issued 7/27/93.
5. Improved Chiral Smectic Liquid Crystal Polarization Interference Filters, **patent #5,243,455**, issued 9/7/93.
6. Chiral Smectic Liquid Crystal Optical Modulators, **patent #5,381,253**, issued 1/10/95.
7. Liquid Crystal Fiber Waveguide, **patent #5,361,320**, issued 11/1/94.
8. High-Speed Electro-Optic Modulators, **patent #5,377,026**, issued 12/27/94.
9. Chiral Smectic Liquid Crystal Multipass Optical Filters Including a Variable Retarder and a Variable Isotropic Spacer, **patent #5,469,279**, issued 11/21/95.
10. Lateral Electrode Smectic Liquid Crystal Devices, **patent #5,493,426**, issued 9/16/96.
11. Analog Smectic Liquid Crystal Devices, **patent #5,510,914**, issued 4/23/96.
12. Split-Element Liquid Crystal Tunable Optical Filter, **patent #5,528,393**, issued 6/8/96.
13. Smectic Liquid Crystal Fabry-Perot Phase Modulator, **patent #5,552,912**, issued 9/3/96.
14. Liquid Crystal Handedness Switch and Color Filter, **patent #5,619,355**, issued 4/8/97.
15. Position Detectors for Detecting Peak Irradiation, **patent #5,561,287**, issued 1996.
16. Liquid Crystal Phase Modulator Using Cholesteric Circular Polarizers, **patent #5,627,666**, issued 5/6/97.
17. Liquid Crystal Achromatic Compound Retarder, **patent #5,658,490**, issued 8/16/97.
18. Polarization-Insensitive Fabry-Perot Tunable Filter, **patent # 5,781,268**, issued 7/14/98.
19. Method and Apparatus for Robust Shape Detection using a Hit/Miss Transform,

**patent #5,790,691**, issued 8/4/98.

20. Color Shutter Liquid Crystal Display System, **patent #5,822,021**, issued 10/13/98.
21. Electro-Optical Device and Method, **patent #5,868,951**, issued 2/9/99.
22. Adaptive Attenuating Spatial Light Modulator **patent #5,917,568**, issued 6/29/99.
23. Liquid Crystal Cell and Method for Assembly Thereof, **patent #5,919,606**, issued 7/6/99.
24. Retarder Stack for Preconditioning Light for a Modulator Having Modulation and Isotropic States of Polarization, **patent # 5,929,946**, issued 7/27/99.
25. Optical Retarder Stack Pair for Transforming Input Light into Polarization States Having Saturated Color Spectra, **patent # 5,999,240**, issued 12/7/99.
26. Programmable Hologram Generator, **patent # 6,040,883**, issued 4/4/00.
27. Switchable Achromatic Compound Retarder, **patent # 6,046,786**, issued 4/4/00.
28. Polarization Manipulating Device Modulator with Retarder Stack which Preconditions Light for Modulation and Isotropic States, **patents # 6,049,367**, issued 4/11/00.
29. Spatially Switched Achromatic Compound Retarder, **patent # 6,078,374**, issued 6/20/00.
30. Split-element Liquid Crystal Tunable Optical Filter, **patent # 6,091,462**, issued 7/18/00.
31. Liquid Crystal Phase Modulator using a Ferroelectric Liquid Crystal with a Rotatable Axis and Cholesteric Circular Polarizers, **patent # 6,141,069**, issued 10/31/00.
32. Semiconductor Laser Based Sensing Device, **patent #6,115,111**, issued 3/23/01.
33. Color Imaging Systems and Methods, **patent # 6,183,091**, issued 2/6/01.
34. Color Controllable Illumination Device, Indicator Lights, Transmissive Windows and Color Filters Employing Retarder Stacks, **patent #6,252,638**, issued 6/26/01.
35. Display Architectures using an Electronically Controlled Optical Retarder Stack, **patent #6,273,571**, issued 8/14/01.
36. Color Filters, Sequencers and Displays Using Color Selective Light Modulators, **patent #6,380,997**, issued 4/30/02.
37. Achromatic Polarization Inverters for Displaying Inverse Frames in DC Balanced Liquid Crystal Displays, **patent #6,417,892**, issued 7/09/02.
38. Optical Retarder Stack Formed of Multiple Retarder Sheets, **patent #6,452,646**, issued 09/17/02.
39. Color Sequential Display Systems, patent pending.
40. Low Information Content Displays, patent pending.
41. Color Separation Architectures, patent pending.
42. A Mixed Mode Grayscale Method for Display System, **patent #6,784,898**, issued 8/31/04.
43. Frame Buffer Pixel Circuit for Liquid Crystal Display, **patent #6,911,964**, issued 6/28/05.
44. A Miniature Projector for Portable Electronic Devices, patent pending.

#### Book Chapters

1. K.M. Johnson, "Sixth Generation Computing," in International Forum On Increasing Management Productivity with Artificial Intelligent Systems, Ed. J. Richardson and M. de Fries, Ablex Publ. Corp., Norwood, NJ, (1990).
2. S.D.D. Goggin, K.M. Johnson and K. Gustafson, "Primacy and Recency in the Backpropagation Neural Network Algorithm" in Progress in Neural Networks, Vol. II., Ed. Omar Omidvar, Ablex Publishing Co, Newark, NJ, (1992).
3. J.Y. Liu, M.G. Robinson, K.M. Johnson, and D. Doroski, "Novel ferroelectric liquid crystal materials for second order NLO", in Nonlinear Optical Materials, J. Robillard and H. Kuhn ed., CRC Press Inc., (1992).

4. N.A. Clark and K.M. Johnson, "Applications of Liquid Crystals in Optical Computing," in Liquid Crystals: Applications and Uses, vol. III, ed. B. Bahadur, World Scientific, Ottawa, Canada, (1993).
5. K.M. Johnson, R. Turner, and S. Serati, "Two-Dimensional VLSI/FLC Spatial Light Modulators for Pattern Recognition", in Design Issues in Optical Processing, ed. John Lee, Cambridge Press, 1994.

#### **Publications in the Popular Press**

1. Johnson, K.M. "Better Futures for Women in Engineering," Opinion Column. Raleigh News and Observer, January 25, 2005.
2. Johnson, K.M. "We must learn to develop our human capital," Opinion Column. Durham Herald-Sun, July 17, 2005.
3. Johnson, K.M. "Universities helping with disaster relief," Opinion Column. Durham Herald-Sun, September 11, 2005.
4. Johnson, K.M. "A great team: Duke and Ronald McDonald," Opinion Column. Durham Herald-Sun, November 27, 2005.
5. Johnson, K.M. "U.S. Engineers Hold Their Own," Opinion Column. The Philadelphia Inquirer, January 8, 2006
6. Johnson, K.M. "Title IX opened a world of possibilities," Opinion Column. Durham Herald-Sun, September 3, 2006.

#### **Refereed Journal Publications**

1. M.D. Levensen, K.M. Johnson, V.C. Hanchett and K. Chiang, "Projection Photolithography by Wavefront Conjugation", *J. Opt. Soc. Amer.* **71**, pg. 737-743, (1981).
2. K.M. Johnson, L. Hesselink and J.W. Goodman, "Holographic Reciprocity Law Failure", *Appl. Opt.* **23**, pg. 218-227, (1984).
3. K.M. Johnson, M. Armstrong, L. Hesselink and J.W. Goodman, " Multiple, Multiple-Exposure Hologram", *Appl. Opt.* **24**, pg. 4467-4472, (1985).
4. K.M. Johnson, M.A. Handschy and L.A. Pagano-Stauffer, "Optical Computing and Image Processing with Ferroelectric Liquid Crystals", *Opt. Eng.* **26**, pg. 385-391, (1987) (invited paper).
5. M.A. Handschy, K.M. Johnson and L.A. Pagano-Stauffer, W.T. Cathey, "Polarization-Based Optical Parallel Logic Gate Utilizing Ferroelectric Liquid Crystals", *Opt. Lett.* **12**, pg. 611-615, (1987).

6. K.M. Johnson, M. Surette and J. Shamir, "Optical Interconnection Network Using Polarization Based Ferroelectric Liquid Crystal Gates", **Appl. Opt.** **27**, pg. 1727-1733, (1988).
7. R. Cormack, K.M. Johnson, W.T. Cathey and L. Zhang, "Optical Inspection of Manufactured Glass Using Adaptive Fourier Filtering", **Opt. Eng.** **27**, pg. 358-364, (1988) (invited paper).
8. M.A. Handschy, K.M. Johnson, G. Model and L.A. Pagano-Stauffer, "Electro-Optic Applications of Ferroelectric Liquid Crystals to Optical Computing", **Ferroelectrics** **85**, pg. 279-289, (1988) (invited paper).
9. K.M. Johnson, "Optical Inspection: Introduction by the Guest Editor", **Appl. Opt.** **22**, pg.4613, (1988).
10. A.C. Strasser, E.S. Maniloff, K.M. Johnson and S.D.D. Goggin, "Procedure for Recording Multiple-Exposure Holograms with Equal Diffraction Efficiency in Photorefractive Media," **Opt. Lett.** **14**, pg. 6-10, (1989).
11. K.M. Johnson, M. Kranzdorf, L. Zhang and J. Bigner, "Polarization-Based Optical Associative Memory", **Opt. Eng.** **28**, pg. 844-848, (1989) (invited paper).
12. K.M. Johnson and G. Model, "Motivations for Using Ferroelectric Liquid Crystals In Optical Neurocomputers", **Appl. Opt.** **28**, pg. 4888-4899, (1989).
13. G. Model, K.M. Johnson, W. Li, R.A. Rice, L.A. Pagano-Stauffer and M.A. Handschy, "High Speed Binary Optically Addressed Spatial Light Modulator", **Appl. Phys. Lett.** **55**, pg. 537-539, (1989).
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136. Y. Morita, J.Y. Liu, S.E. Gilman and K.M. Johnson, "Fast Nematic Liquid Crystal Fabry-Perot Filter for WDM All-Optical Networks," **IEEE/LEOS Summer Topical Meetings**, Keystone, CO, (August 5-9, 1996).
137. R. Narayanswamy, D. J. McKnight and K. M. Johnson "Optoelectronic Region of Interest Detection in Cervical Smears," **1996 International Topical Meeting on Optical Computing**, Sendai, Japan, (April 1996).
138. P.T. Kazlas, D.J. McKnight and K.M. Johnson and S. Gilman, "Integrated Assembly of Miniature Liquid-crystal-on-silicon Displays," **SID International Symposium Digest of Technical Papers**, Vol. XXVII, Boston, Mass, (May, 1997).
139. S.I. Wong, J.Y. Liu and K.M. Johnson, "Liquid Crystal Fiber Phase Modulator", **OFC Conference Technical Digest**, pg. 173-174, (1997).

140. M.H. Schuck, D.J. McKnight, and K.M. Johnson, "An Automotive HUD Implemented with a Reflective Microdisplay," **Society for Information Display Annual Meeting**, Vol. 28, pg. 56-59 (1997).
141. J.L. Metz, A.R. Plezkun and K.M. Johnson, " CMOS Smart Photosensor Array for Optoelectronic Hit/Miss Transform Processing of Cervical Smears," **1998 Laser Electro-Optics Society Conference Proceedings**, Volume 2, pg. 67-68.
142. S.R. Lee and K.M. Johnson, "Frame Buffer Pixel Projection Architectures", **2000 Laser Electro-Optics Society Conference Proceedings Annual Meeting**.
143. S.R. Lee, J.C. Morizio, and K.M. Johnson, " A LCOS Microdisplay Driver with Frame Buffering Pixels", **2002 Proceedings of the 6<sup>th</sup> Joint Conference on Information Sciences**, pg. 1353.

#### **Plenary and Invited Talks/Tutorials**

1. "Spatial Light Modulators and Their Applications", **SPIE OE/Laser Conf.**, Los Angeles, CA, January 15, 1988.
2. "Relationship Between Sports and Academics," **Colorado Sportswoman Hall of Fame Dinner Speech**, March 1988.
3. "Sixth Generation Machines", **TRW Colloquium Speaker Series**, Redondo Beach, CA, March 1988.
4. "Optical Connectionist Machines", **Optoelectronics 1990 and Beyond**, Killarney, Ireland, May 1988.
5. "Applications and Characteristics of Ferroelectric Liquid Crystal Spatial Light Modulators", **Optical Society of America Topical Meeting on Spatial Light Modulators and Their Applications**, S. Lake Tahoe, Nevada, June 1988.
6. "Sixth Generation Computing: Optical Connectionist Machines", **Int'l. Forum on Increasing Management Productivity with Artificial Intelligent Systems**, Snowmass, CO., August 1988.
7. "Optical Thinking Machines", **Council for the Advancement of Science Writing National Meeting**, Boulder, CO., November 1988.
8. "Ferroelectric Liquid Crystal Electro-optic Devices", **OSA Annual Meeting**, Santa Clara, CA, November 2, 1988.
9. "The Sixth Generation Computing", **Computer and Communications Industry Assoc.**, Santa Barbara, CA., February 1989.
10. "Ferroelectric Liquid Spatial Light Modulators: A Critical Review", **SPIE Annual Meeting**, San Diego, CA., August 1989.



11. "Application of Thin Film Ferroelectric Liquid Crystals", **Gordon Conference on Thin Film Materials**, Santa Barbara, CA., February 12, 1990.
12. "Future Directions in Spatial Light Modulator Technology", **Topical Meeting on Spatial Light Modulators**, Lake Tahoe, CA 1990, (Panelist).
13. "The Match Between Optoelectronic Computing Devices and Systems", with W.T. Cathey, **International Meeting on Optical Computing**, Kobe, Japan, April 1990.
14. "The Optical Connectionist Program", **Optoelectronic Computing System Center National Television University (NTU) Symposium**, Boulder, CO., April 5, 1990.
15. "Optoelectronic Neural Networks", **Korea-USA Joint Workshop on Optical Neural Networks**, Seoul, Korea, April 18, 1990.
16. "Neural Networks and Their Applications", Ralph M. Johnson Distinguished Lecture Series, **Utah State University**, July 8-12, 1990.
17. "Neural Networks Utilizing Smart Spatial Light Modulators", **International Radio Science Meeting**, Prague, Czechoslovakia, August 29, 1990.
18. "Ferroelectric Liquid Crystal Smart Spatial Light Modulators", **Optical Society of America Topical Meeting on Spatial Light Modulators**, Incline Village, NV, September 10, 1990.
19. "Future Directions in Spatial Light Modulator Technology" **Topical Meeting on Spatial Light Modulators**, Lake Tahoe, CA., September 10, 1990 (Invited Panelist).
20. "VLSI/FLC Spatial Light Modulators and FLC Optical Tunable Filters", **Workshop on Optical Switching Networks**, Montbello, Ontario, Canada, October 11, 1990.
21. "The Role of Spatial Light Modulators in Neural Networks", **Lasers and Electro-optics Society Annual Meeting**, Orlando, FL., October, 1990.
22. "Spatial Light Modulators and Their Applications", **LEOS Annual Meeting**, Boston, MA, November 4, 1990.
23. "Neural Network Hardware Using VLSI/FLC Modulators", **Workshop on Neural Information Processing Systems**, Keystone, CO., December, 1990.
24. "Future Directions in Optical Neural Networks", **Workshop on Neural Information Processing Systems**, Keystone, CO., December, 1990.
25. "The Role of Optics in Neural Networks", **Neural Information Processing Systems Meeting**, December 2, 1991.
26. "Applications of Ferroelectric Liquid Crystals", **Soc. of Phot. Instr. Eng.**, San Jose, CA., February 26, 1991.
27. "The Role of Optics in Neurocomputing", **International Joint Conference on Neural Networks**, Seattle, WA, July 12, 1991.

28. "Spatial Light Modulators and Their Applications", **SPIE Annual Meeting**, July 21, 1991.
29. "Optical Neural Networks", **Annual Meeting of the Soc. Phot. Inst. Eng.**, San Diego, CA, July 22, 1991.
30. "Spatial Light Modulators and Their Applications", **OSA Annual Meeting**, November 3, 1991.
31. "Chiral Smectic Liquid Crystals" in Symposium on Smart Pixels: Systems 2, **Optical Society of America Annual Meeting**, November 8, 1991.
32. "Applications of Chiral Smectic Liquid Crystals to Optical Spectrometry", Int. **Workshop on FLCs**, E.N.S.T., Bretagne, France, January 13, 1992.
33. "Optical Neural Network Architectures", Plenary Lecture at the opening of Sharp Laboratories, UK, **Symposium on Optical Neural Networks**, June 25, 1992, Oxford, UK.
34. "Optical Neural Networks and Their Applications", **OSA Annual Meeting**, September 24, 1992.
35. "Spatial Light Modulators and Their Applications", **Lasers and Electro-Optics Society**, November 17, 1992.
36. "Liquid Crystal Phase Modulators," **Physical Optics Corporation**, January 26, 1993.
37. "Applications of Chiral Smectic Liquid Crystals," **Soc. Phot. Instr. Eng.**, San Jose, CA, February 4, 1993.
38. "Optical Storage in Photorefractive Volume Holographic Media," **IBM Almaden Research Center**, San Jose, CA, February 24, 1993.
39. "International Perspective on Liquid Crystal SLMs," **OSA Topical Meeting on Spatial Light Modulators**, March 16, 1993.
40. Distinguished Lecturer, **Special Symposium on Optical Signal Processing, University of Texas at Dallas**, "What Optics Can Do For Signal Processing and Neural Networks," April 16, 1993.
41. "Liquid Crystal on Silicon Spatial Light Modulating Devices," **Massachusetts Institute of Technology**, Cambridge, MA, May 4, 1993.
42. "128 x 128 Liquid Crystal Spatial Light Modulators," **Kopin Corporation**, Taunton, MA, May 5, 1993.
43. "Optoelectronic Neural Networks," **Workshop at the Connectionist Summer School**, Boulder, CO, June 24, 1993.
44. "Smart Pixels and Their Applications," **SPIE**, July 28, 1993.

45. "Liquid Crystals for Use in Silicon Integrated Circuits," Symposium on Ferroelectric Liquid Crystals at the **8th International Meeting on Ferroelectricity**, Gaithersburg, MD, August 8-13, 1993.
46. "Optical Neural Networks," **OSA Annual Meeting**, October 2, 1994.
47. "Multi-chip Module Packaging for Realizing Compact Optical Processors," **OSA Symposium on Optical System Miniaturization, Annual Meeting**, Toronto, Canada, invited talk, October 4, 1993.
48. "Optical Neural Networks and Their Applications," **OSA Annual Meeting**, October 6, 1993.
49. "Liquid Crystal Electro-Optics," **Beckman Instruments**, Brea, CA., November 10-11, 1993.
50. "Liquid Crystals and Their Applications to Smart Displays and Tunable Filters," **Massachusetts Institute of Technology**, Cambridge, Mass., December 10, 1993.
51. "Synergistic Roles of Industry and Academia in Pursuit of the All-Optical Dream," **NSF Workshop on Optical Communication Systems and Networks**, Arlington, VA, March 23, 1994.
52. "Optoelectronics - From Wireless Communication to Flat-Panel Displays," **URSI**, Boulder, CO, January 14, 1995.
53. "Future of Optical Computing Research," **NEC Symposium Series**, Princeton, NJ, January 18, 1995.
54. "Advances on LC Smart Pixel Systems" **ISHM International Symposium on Advanced Packaging**, Atlanta, GA, February 9, 1995.
55. "Discover Engineering," **NTU, Live Broadcast on Women and Engineering Panel**, Fort Collins, CO, February 22, 1995.
56. "LCOS Smart Pixel Arrays" **Thin Films for Integrated Optics**, NIST, April 1, 1995.
57. "Liquid Crystal Tunable Optical Filters" **ACS Liquid Crystal Symposium**, April 16, 1995.
58. "LCOS Smart Pixel Arrays," **Symposium on Thin Films for Integrated Optics**, San Francisco, CA, April 17, 1995.
59. "Applications of LCOS SLM's," **LEOS Chapter Seminar Series**, Dallas, TX, April 20, 1995.
60. "Liquid Crystal Microdisplay Technology", **ARPA Workshop on Display Technology**, May 3, 1995.
61. "Components: Spatial Light Modulators" **NML Holographic Storage Review**, Boulder, CO, June 15, 1995.

62. "Photonics Switches" TCI, Inc., **Advanced Information Technology Conference**, Aspen, CO, June 22, 1995.
63. "Applications of LCOS Smart Pixel Arrays" **NSF/ERC Workshop**, June 28, 1995.
64. "Applications of LCOS Devices to Pattern Recognition" **CLEO Pacific Rim**, Chiba, Japan, July 13, 1995.
65. "Non-Display Applications of Ferroelectric Liquid Crystals" **International Conference on Ferroelectric Liquid Crystals**, July 25, 1995.
66. "Applications of Optoelectronic Technology," **Duke University**, University NSF/ERC for ECT, Durham, NC, November 13, 1995.
67. "Optoelectronic Technologies for a Global Community" **JETRO**, Multimedia-Japan Focus on Core Technology, Denver, CO, November 20, 1995.
68. "Missile to Mammograms," **BMDO Technology Applications Review**, Image Guided Medicine, Los Angeles, CA, January 16-17, 1996.
69. "Liquid Crystal on Silicon Spatial Light Modulators", **Rocky Mountain OSA**, Denver, Colorado, February 9, 1996 - IEEE Lasers and Electro-Optical Society Denver Section.
70. "Frontiers of Electro-Optics," **BATC Management Meeting**, Arlington, VA, March 19, 1996.
71. "Liquid Crystal Lift-Off Devices", **Kopin Corporation**, Taunton, Mass., March 1996.
72. "Gazing into the Crystal Ball: What New Technologies Mean for Our Future", **Conference on World Affairs**, Boulder, Colorado, April 12, 1996.
73. "Trends in New Technology", **Women's Foundation of Colorado Conference**, Denver, Colorado, June 5, 1996.
74. "Pseudorandom Codes for Volume Holographic Storage Application" **OSA International Symposium on Optical Memory and Optical Data Storage**, July 8-12, 1996.
75. "High Resolution Full Color Microdisplays and Their Applications" **OSA International Symposium on Optical Memory and Optical Data Storage**, July 8-12, 1996.
76. "High-Resolution Full Color Micro-Displays and their Applications", **International Commission on Optics**, Seoul, Korea, August 22, 1996.
77. "Liquid Crystal Tunable Optical Filters" **OSA Annual Meeting**, September 6, 1996.
78. "Optoelectronic Research and Development in NSF/ERC's", **OIDA Annual Meeting**, Arlington, VA, October 17, 1996.

79. "Entrepreneurship In Optical Computing," **OSA Computing Technical Panel**, Rochester, NY, October 21, 1996.
80. "Telecommunications: The Next Generation", **Talk 50 for Colorado**, Boulder, Colorado, March 1997.
81. "Product Design and Development Process," **CLEO/QELS**, San Diego, CA, May 21, 1997, (Panelist and Moderator).
82. "FLC Displays and Color Filters," **TAHMI Conf.**, Boulder, Colorado, March 1997.
83. "Liquid Crystal on Silicon Microdisplays", **Samsung**, Seoul, Korea, July 4, 1997.
84. "Packaging and Planarization of Integrated Circuits and Microdisplays" **OSA Annual Meeting**, September 11, 1997.
85. "Smart Pixel Arrays for Intelligent Image Sensing" **OSA Annual Meeting, Symposium on Smart Pixel Arrays**, Long Beach, California, Oct. 12, 1997.
86. "Liquid Crystal on Silicon," **Hewlett Packard**, Palo Alto, CA, October 1, 1997.
87. "Liquid Crystals and Their Applications to Microdisplays and Tunable Filters," **Colorado School of Mines**, February 3, 1998.
88. "Technology Transfer from NSF/ERC's", **NRC, Govt./Univ./Ind. Research Roundtable**, Irvine, California, March 1998.
89. "Liquid Crystal on Silicon Smart Pixel Devices and Their Applications to Microdisplays and Optical Processing Systems", **Draper Labs**, Cambridge, Mass., **Symposium: Electro-Optics: Present and Future**, April 23-24, 1998.
90. "Birefringence Induced Liquid-Crystals," **Massachusetts Institute of Technology**, Cambridge, MA, April 27, 1998.
91. "Overcoming Barriers to Collaborative Research," **Government-University-Industry-Research Roundtable & Committee on Science, Engineering and Public Policy**, Irvine, CA, March 23-24, 1998.
92. "Liquid Crystal on Silicon Microdisplays" **Swedish Industrial Microelectronics Annual Meeting "Optics Days"**, October 19, 1998.
93. "Applications of LCOS Microdisplays", **Optics Days**, Stockholm, Sweden, October 21, 1998.
94. "Commercialization Successes of Smart Pixel Arrays", **Topical Meeting on Spatial Light Modulator's**, Snowmass, Colorado, April 12, 1999.
95. "The Changing Face of Engineering", **National Meeting of the Society of Women Engineers**, June 2000, Washington, DC, (Keynote Speaker).

96. "Photonic Futures" **Smithsonian Invited Lecture, Celebrating the 50<sup>th</sup> Anniversary of the NSF**, Washington, DC, November 6, 2000.
97. "Women in the Physical Sciences," **Duke Association of Scholars**, Durham, North Carolina, January 16, 2001.
98. "Designing the Future," **Smith College**, Boston, Massachusetts, March 30, 2001 (Keynote Panelist, Opening of the Pickering Institute).
99. "Changing the Face of Engineering," **WEPAN**, Arlington, Virginia, April 24, 2001 (Keynote Speaker).
100. "The Future of Photonics", **CED Infotech 2001**, Durham, North Carolina, April 24, 2001 (Keynote Speaker).
101. "University and Industry Research Partnerships," **NSF Science and Technology Symposium**, San Diego, California, July 24, 2001.
102. "State-of-the-Art Technologies," **TechFair 2001**, United States Patent Office, Washington, DC September 6, 2001 (Keynote Speaker).
103. "The Need for Women in Engineering," **School of Mines**, Golden, Colorado, September 10, 2001 (Keynote Speaker).
104. "Building a R&D Innovation Engine for RTP," **TARDC**, Research Triangle Park, North Carolina, March 19, 2002 (Keynote Speaker).
105. "Expanding Your Horizons," **North Carolina State University**, Raleigh, North Carolina, March 12, 2002 (Keynote Speaker).
106. "Towards 2010: The Faculty of Engineering Symposium," **University of Georgia**, Athens, Georgia, April 18, 2002, (Keynote Speaker).
107. "The Changing Face of Engineering, Science and Technology," **US Senate Subcommittee on Science, Technology and Space**, Washington, DC, July 24, 2002 (Invited Panelist).
108. "Recent Advances in Micro-display Technologies," **SPIE Opto Ireland**, Galway, Ireland, September 5-6, 2002 (Keynote Speaker).
109. "Career Pathways in Science and Engineering," **National Society of Black Engineers Zone Conference**, Durham, North Carolina, September 21, 2002 (Keynote Speaker).
110. "What's new in University Research. " **Center for Entrepreneurial Development Venture Capital Forum**, Research Triangle Park, North Carolina, September 27, 2002, (Invited Panelist).
111. "Jump Starting Innovation," **North Carolina Governor's Panel on Emerging Issues**, Moderated by Governor's Easley and Hunt, Research Triangle Park, North Carolina, February 10, 2003, (Invited Panelist).



112. "Thoughts on Preparing a Life-long Career," **Meredith College, Math and Science Undergraduate Students Career Day**, Raleigh, North Carolina, April 10, 2003, (Keynote Speaker).
113. "How to Choose Your University," **Duke University Blue Devil Days**, Durham, North Carolina, April 15, 2003.
114. "Hot Research Topics in Photonics," **Center for Entrepreneurial Development 20<sup>th</sup> Annual Venture Conference**, Chapel Hill, North Carolina, April 22, 2003 (Invited Panelist).
115. "Everyday Heroes," **DCRI 5<sup>th</sup> Annual Administrative Professionals Day**, Durham, North Carolina, April 23, 2003, (Keynote Speaker).
116. "Day in the Life of a Dean" **Duke University, Board of Trustees Spouses Program**, Durham, North Carolina, May 8, 2003, (Keynote Speaker).
117. "Status and challenges in achieving true color, high resolution displays," **Optical Society of America Annual Meeting**, Tucson, Arizona, October 7, 2003 (Invited speaker).
118. "Leading and Managing Change: Keeping a Balance," **Duke University Administrative Women's Network**, Durham, North Carolina, October 21, 2003 (Keynote Speaker).
119. "The future of higher education and its importance to North Carolina/RTP/Durham,," **Durham Rotary Club**, Durham, North Carolina, March 1, 2004 (Keynote speaker).
120. "Selling the RTP," event sponsored by the **North Carolina Council on Entrepreneurial Development and the NC Office of the State Treasurer**, Boston, Massachusetts, March 9, 2004 (Invited speaker).
121. "Are morals improving or being corrupted in our contemporary world?" **Duke University Faculty Symposium honoring President Nannerl O. Keohane**, Durham, North Carolina, March 22, 2004 (Invited Panelist).
122. "Overcoming the Barriers to Entrepreneurship and Venture Funding for Women and First and Second Generation Immigrants," **TiE – Carolinas**, Cary, North Carolina, May 4, 2004 (Invited speaker).
123. "The Technology of Tomorrow," **National Venture Capital Association Annual Meeting**, San Francisco, California, May 13, 2004 (Invited Panelist).
124. "The Changing Face of Engineering," **ASEE Annual Meeting**, Salt Lake City, Utah, June 23, 2004 (Distinguished Lecturer).
125. "Harnessing Light for America: Optics and Photonics for Medicine and More," **OSA and SPIE in coordination with Congressional Research & Development Caucus, co-chaired by Rep. Judy Biggert (R-IL) and Rep. Rush Holt (D-NJ)**, October 7, 2004 (Invited Speaker).



126. "The importance of an integrated, application-focus for an electrical engineering curriculum," **Electrical and Computer Engineering Department Heads Association Annual Meeting**, March 21, 2005 (invited speaker).
127. "The Growing Need for Engineers in the US," **Projects Day, US Military Academy, West Point, New York**, May 4, 2005 (invited keynote speaker).
128. "The three things to get out of your graduate education experience," **Duke University Graduate School Convocation**, August 25, 2005 (invited speaker).
129. **Council for Entrepreneurial Development** Keynote Speaker, October 12, 2005.
130. "Applications of Liquid Crystals to optical information processing and projection display," **Department of Electrical Engineering, Pennsylvania State University, Distinguished Lecture Series**, November 18, 2005 (invited speaker).
131. "Applications of Liquid Crystals to optical information processing and projection display," **College of Optical Science, University of Arizona, Colloquium Series**, April 13, 2006 (invited speaker).
132. "Applications of Liquid Crystals to optical information processing and projection display," **SPIE Women In Optics, SPIE Photonics West**, August 17, 2006 (invited speaker).
133. "Creativity in the Contemporary University," **Duke University Phi Beta Kappa armchair discussion**, September 18, 2006 (invited panelist).

#### Conference Presentations

1. "Multiple-Exposure Holographic Display of C.T. Medical Data," K.M. Johnson, L. Hesselink and J.W. Goodman, SPIE/SPSE, San Diego, CA., August, 1982.
2. "Investigation of a Latent Image Model for Multiple-Exposure Holography", K.M. Johnson, L. Hesselink and J.W. Goodman, OSA Annual Meeting, Tucson, AZ, October 1982.
3. "Holographic Display Devices", L. Hesselink, K.M. Johnson and R.J. Perlmutter, Soc. Phot. Instr. Eng., Geneva, Switzerland, April, 1983 (Invited).
4. "An Analytical Model for Latent Image Formation in Multiple-Exposure Holography", K.M. Johnson, M. Nazarathy and J.W. Goodman, SPIE/SPSE, San Francisco, CA, June, 1983.
5. "Multiple Multiple-Exposure Hologram", K.M. Johnson, L. Hesselink and J.W. Goodman, OSA Annual Meeting, New Orleans, October, 1983.
6. "Effects of UV Laser Irradiation on pBR322 DNA," K.M. Johnson, C. Ohuigin, D. McConnell, J.M. Kelly and D.J. Bradley, OSA Annual Meeting, San Diego, CA, October, 1984.

7. "C.W. Laser Cleaning of Historic Buildings and Monuments", H.J. Masterson, K.M. Johnson and D.J. Bradley, OSA Annual Meeting, Washington, DC October, 1985.
8. "Holographic Sundial", K.M. Johnson, R. Cormack, A. Strasser, and J. Carsten, OSA Topical Meeting on Holography, Honolulu, HI, April, 1986.
9. "Phase Conjugate Resonator for High-Resolution Scanning Microscopy", R. Cormack, K.M. Johnson and W.T. Cathey, OSA Annual Meeting, Seattle, WA, 1986.
10. "Optical Logic Gates Using Ferroelectric Liquid Crystals", L.A. Pagano-Stauffer, K.M. Johnson, N.A. Clark and M.A. Handschy, OSA Annual Meeting, Seattle, WA, October, 1986.
11. "Photoaddressing of High Speed Ferroelectric Liquid Crystals", K.M. Johnson and G. Moddel, SPIE/SPSE, Los Angeles, CA, January, 1987.
12. "An Electro-Optical System for Inspection of Glass Bottles Using Adaptive Spatial Filtering", R. Cormack, K.M. Johnson and W.T. Cathey, SPIE/SPSE, Los Angeles, CA, January, 1987.
13. "Matrix-Vector Multiplication Using Polarization Rotators", L. Scharf, W.T. Cathey and K.M. Johnson, OSA Topical Meeting on Optical Computing, Lake Tahoe, NV, March, 1987.
14. "Polarization-Based Optical Logic Gates Using Ferroelectric Liquid Crystal Spatial Light Modulators", M. Kranzdorf, A. Strasser, and K.M. Johnson, OSA Topical Meeting on Optical Computing, Lake Tahoe, NV, March, 1987.
15. "Mactivation and Optical Associative Memory," M. Kranzdorf and K.M. Johnson, IEEE Int'l. Conf. on Neural Networks, San Diego, CA, June, 1987.
16. "Three-Dimensional Optical Interconnects Using Ferroelectric Liquid Crystal Fredkin Gates" K.M. Johnson, M. Surette and J. Shamir, ICO/IOC Conf., Quebec, Canada, August, 1987.
17. "The Application of Spatial Light Modulators to Real-Time Opto-Electronic Inspection of Manufactured Glass Jars", R. Cormack, K.M. Johnson, W.T. Cathey, and F. Dolder, ICO/IOC Conference, Quebec, Canada, August, 1987.
18. "Optical Computing with Ferroelectric Liquid Crystals", L.A. Pagano-Stauffer, K.M. Johnson, and M.A. Handschy, SPIE/SPSE, San Diego, CA, August, 1987 invited.
19. "Electro-Optic Applications of Ferroelectric Liquid Crystals to Optical Computing", M.A. Handschy, K.M. Johnson, G. Moddel, and L.A. Pagano-Stauffer, First Int'l. Conf. Ferroelectric Liquid Crystals, Bordeaux, France, September, 1987.
20. "Optical Logic Gates Using Ferroelectric Liquid Crystals", K.M. Johnson, G. Moddel, S.A. Anderson, and L.A. Pagano-Stauffer, OSA Annual Meeting, Rochester, NY, October, 1987.
21. "Optical Interconnects Using Ferroelectric Liquid Crystals", N. Clark, M.A. Handschy,

- M. Meadows, and K.M. Johnson, OSA Annual Meeting Annual Meeting, Rochester, NY, October, 1987.
22. "Design and Performance of High-Speed Optically-Addressed Spatial Light Modulators", W. Li, C.T. Kuo, G. Moddel, and K.M. Johnson, SPIE/SPSE, 936, Los Angeles, CA, January, 1988.
  23. "Optical Addressing of High-Speed Spatial Light Modulators with Hydrogenated Amorphous Silicon", G. Moddel, C.T. Kuo, K.M. Johnson, and W. Li, Mat. Res. Soc., Amorphous Silicon Tech. Meeting, Pittsburgh, PA, 1988.
  24. "Optical Interconnects Using Ferroelectric Liquid Crystal", K.M. Johnson, M. Surette, M. Yablowsky, M. Handschy, M. Meadows, L. Roosman, and N. Clark, SPIE, Newport Beach, CA, March, 1988 (invited talk).
  25. "Optical Neurocomputers Using Liquid Crystal Spatial Light Modulators", K.M. Johnson, NSF Review Meeting, Phoenix, AZ, June, 1988 (invited talk).
  26. "A Compact Optoelectronic Connectionist Machine", K.M. Johnson, L. Cotter, L. Zhang, and J. Bigner, ICO/CIO Top. Mtg. on Optical Computing, Toulon, France, Aug., 1988.
  27. "An Optoelectronic Connectionist Machine Utilizing Liquid Crystal Spatial Light Modulators", J. Bigner, L. Zhang, L. Cotter, and K.M. Johnson, International Neural Network Soc. Annual Meeting, Boston, MA, September, 1988.
  28. "Ferroelectric Liquid Crystal Electro-Optic Devices", Tutorial, K.M. Johnson, OSA Annual Mtg., Santa Clara, CA, October, 1988.
  29. "Ferroelectric Liquid Crystal Tunable Filters", H.J. Masterson and K.M. Johnson, OSA Annual Mtg., Santa Clara, CA, October, 1988.
  30. "Optical Neurocomputing Using Liquid Crystal Spatial Light Modulators", L. Zhang, J. Bigner, L. Cotter, and K.M. Johnson, OSA Annual Mtg., Santa Clara, CA, October, 1988.
  31. "Multiple-Exposure Holograms Stored and Reconstructed with Equal Efficiencies in Photorefractive Media", E. Maniloff, K.M. Johnson, and A.C. Strasser, OSA Annual Mtg., Santa Clara, CA, October, 1988.
  32. "Image Formation in a Phase Conjugate Scanning Microscope", C.C. Mao, K.M. Johnson, and W.T. Cathey, OSA Annual Mtg., Santa Clara, CA, October, 1988.
  33. "Optical Connectionist Machines", K.M. Johnson, Optoelectronics 1990 and Beyond, Killamey, Ireland, May, 1988.
  34. "Ferroelectric Liquid Crystal Optical Exchange Switches", M.G. Robinson, K.M. Johnson and D. Doroski, OSA Annual Meeting, Orlando, FL, October, 1989.
  35. "Influence of Pinhole Size on the Image Formation in a Phase Conjugate Scanning Microscope", C.C. Mao, K.M. Johnson and W.T. Cathey, OSA Annual Meeting, Orlando, FL, October, 1989.

36. "Low-power, High-speed Optical Phase Conjugation Using Optically Addressed Spatial Light Modulator", C.C. Mao, K.M. Johnson, K. Arnett, M.A. Handschy and G. Modell, OSA Annual Meeting, Orlando FL, October, 1989.
37. "Joint Transform Correlation Using Optically Addressed Chiral Smectic Liquid Crystal Spatial Light Modulators", D.A. Jared, K.M. Johnson and G. Modell, OSA Annual Meeting, Orlando, FL, October, 1989.
38. "Dynamic Holographic Interconnects Using Static Holograms", E.S. Maniloff and K.M. Johnson OSA Annual Meeting, Orlando, FL, October, 1989.
39. "Ferroelectric Liquid Crystal Tunable Filters", G. Sharp, K.M. Johnson and D. Doroski, OSA Annual Meeting, Orlando, FL, October, 1989.
40. "Photorefractive Dynamics in LiNbO<sub>3</sub>", E.S. Maniloff and K.M. Johnson, SPIE Topical Meeting on Digital Optical Computing, Los Angeles, CA, January, 1990.
41. "Optical Implementations of Multilayer Neural Networks", K.M. Johnson, Workshop on Optical Neural Networks, Jackson Hole, Wyoming, February, 1990.
42. "Application of Thin Film Ferroelectric Liquid Crystals", K.M. Johnson, Gordon Conference on Thin Film Materials, Santa Barbara, CA, February, 1990.
43. "The Optical Connectionist Program", K.M. Johnson, "Optoelectronic Computing System Center National Television University (NTU) Symposium, Boulder, CO, April, 1990.
44. "The Match Between Optoelectronic Computing Devices and Systems", K.M. Johnson and W.T. Cathey, 1990 International Topical Meeting on Optical Computing, Kobe, Japan, March, 1990 (invited talk).
45. "An Optical Connectionist Machine using a Novel Compact Matrix-Vector Multiplier", L. Zhang, M.G. Robinson and K.M. Johnson, 1990 International Topical Meeting on Optical Computing, Kobe, Japan, April, 1990.
46. "Optically Addressed Spatial Light Modulators for Early Vision Processing", D.A. Jared, K.M. Johnson, C.C. Mao, R. Turner, K. Wagner and T.M. Slagle, 1990 International Topical Meeting on Optical Computing, Kobe, Japan, April, 1990.
47. "Optical Connectionist Machines", K.M. Johnson, Seoul, Korea, April, 1990.
48. "Edge Enhancement and Optical Novelty Filtering Using Spatial Light Modulators", K.M. Johnson, Beijing, China, August, 1990.
49. "Applications of Spatial Light Modulators and Holography to Optical Neural Networks", K.M. Johnson and H. Chase, Institute of Sinica, Chengdu, China, August, 1990.
50. "Ferroelectric Liquid Crystal Smart Spatial Light Modulators", K.M. Johnson, R. Turner, D. Jared and C.C. Mao, Prague, Czechoslovakia, August, 1990.

51. "Future Directions in Spatial Light Modulator Technology", K.M. Johnson, Topical Meeting on Spatial Light Modulators, Lake Tahoe, CA, 1990.
52. "VLSI/FLC Spatial Light Modulators and FLC Optical Tunable Filters", K.M. Johnson, Workshop on Switching Networks, Montbello, Ontario, Canada, October, 1990.
53. "FLC-based Optical Interconnects", K.M. Johnson, SPIE Symposium on Optical Interconnects, Boston, MA, November, 1990.
54. "Custom Electro-Optic Devices for Optically Implemented Neuromorphic Computer Systems", M.G Robinson, L. Zhang, K.M. Johnson, and D.A. Jared, Annual Meeting of the Optical Society of America, Boston, MA, November, 1990.
55. "Signal-to-Noise Limitations on the Number of Channels in Holographic Communication Networks", A. Lahrichi, K.M. Johnson, G. Fredericks, and E.S. Maniloff, Annual Meeting of the Optical Society of America, Boston, MA, November, 1990.
56. "Ferroelectric Liquid Crystal Waveguiding for Nonlinear Optics Applications", J.Y. Liu, M.G. Robinson, K.M. Johnson and D. Doroski, Annual Meeting of the Optical Society of America, Boston, MA, November, 1990.
57. "Novelty Filtering Using Amorphous Silicon/Ferroelectric Liquid Crystal Devices", K.M. Johnson, C. Mao, Annual Meeting of the Optical Society of America, Boston, MA, November, 1990.
58. "Effects of Scattering on Photorefractive Dynamics", E.S. Maniloff and K.M. Johnson, Annual Meeting of the Optical Society of America, Boston, MA, November, 1990.
59. "Fundamental Limits of VLSI Liquid Crystal Spatial Light Modulators", D.A. Jared, K.M. Johnson, Technical Digest of the Annual Meeting of the Optical Society of America, Boston, MA, November, 1990.
60. "Ferroelectric Liquid Crystal Color Filters and Displays", G.D. Sharp, H. Chase, D. Doroski and K.M. Johnson, Annual Meeting of the Optical Society of America, Boston, MA, November, 1990.
61. "High Speed, Compact Correlator Using VLSI Liquid Crystal Spatial Light Modulator", R. Turner, D.A. Jared, K.M. Johnson, D. Crossland, M. Birch and D. Vass, Annual Meeting of the Optical Society of America, Boston, MA, November, 1990.
62. "Optically Addressed CMOS VLSI Liquid Crystals Spatial Light Modulators", D.A. Jared, T.M. Slagle, K.M. Johnson and K. Wagner, Annual Meeting of the Optical Society of America, Boston, MA, November, 1990.
63. "Rapidly Tunable Liquid Crystal Optical Filters", G.D. Sharp, D. Doroski and K.M. Johnson, SPIE Lasers 90 Conference, San Diego, CA, December, 1990.
64. "Applications of Ferroelectric Liquid Crystals to Optical Switching and Computing", K.M. Johnson, SPIE/SPSE Electronic Imaging and Technology, San Jose, CA,

February 26, 1991.

65. "Limits on Multiplexed Holographic Storage in Photorefractive Crystals", E.S. Maniloff and K.M. Johnson, SPIE/SPSE Electronic Imaging and Technology, San Jose, CA, February 27, 1991.
66. "Applications of Ferroelectric Liquid Crystals to Optical Interconnects and Neural Networks", K.M. Johnson, National Televised University, Boulder, CO, May, 1991.
67. "Applications of Ferroelectric Liquid Crystals", K.M. Johnson, Soc. of Phot. Instr. Eng., San Jose, CA., February 26, 1991.
68. "The Role of Optics in Neurocomputing", K.M. Johnson, International Joint Conference on Neural Networks, Seattle, WA, July 12, 1991.
69. "Optical Neural Networks", K.M. Johnson, Soc. of Photo. Instr. Eng., July 22, 1991.
70. "Smectic Liquid Crystal Polarization Interference Filters", G. Sharp, K. Johnson, D. Doroski, and J. Stockley, IV International Topical Meeting on Optics of Liquid Crystals, Cocoa Beach, Florida, October, 1991.
71. "High Frequency Response in a Ferroelectric Liquid Crystal via the Pockels Electro-optic Effect in a Thin Film Waveguide", J.Y. Liu, M.G. Robinson, K.M. Johnson, and D. Doroski, Annual Meeting of the Optical Society of America, San Jose, CA, November 4, 1991.
72. "Optoelectronic Connectionist Machines", L. Zhang and K.M. Johnson, Annual Meeting of the Optical Society of America, San Jose, CA, November 4, 1991.
73. "Early Vision Zero-Crossing Liquid Crystal Spatial Light Modulator", D.A. Jared and K.M. Johnson, Annual Meeting of the Optical Society of America, San Jose, CA, November 5, 1991.
74. "Ferroelectric Liquid Crystal Smart Spatial Light Modulators", K.M. Johnson, D.A. Jared, R. Turner, I. Underwood, Annual Meeting of the Optical Society of America, San Jose, CA, November 7, 1991.
75. "Pulse Frequency Modulated Optically Addressed Liquid Crystal Spatial Light Modulator", D.A. Jared and K.M. Johnson, Annual Meeting of the Optical Society of America, San Jose, CA, November 7, 1991.
76. "Photovoltaic Optically Addressed Spatial Light Modulator", C.C. Mao, B. Landreth, K.M. Johnson, and G. Moddel, Annual Meeting of the Optical Society of America, San Jose, CA, November 8, 1991.
77. "VLSI Electrically Addressed Ferroelectric Liquid Crystal Spatial Light Modulators and Detector Arrays for Optical Processing Systems", R. Turner, D.A. Jared, and K.M. Johnson, Annual Meeting of the Optical Society of America, San Jose, CA, November 8, 1991.



78. "Particle Image Velocimetry Fringe Processing Using an Optically Addressed Spatial Light Modulator", J.P. Sharpe and K.M. Johnson, Annual Meeting of the Optical Society of America, San Jose, CA, November 8, 1991.
79. "Ferroelectric Liquid Crystal Tunable Polarization Filter", G.D. Sharp, J.E. Stockley, D. Doroski, and K.M. Johnson, Annual Meeting of the Optical Society of America, San Jose, CA, November 8, 1991.
80. "Spatial Light Modulators and Their Applications", K.M. Johnson. Tutorial presented at the Annual Meeting of the Optical Society of America, San Jose, CA, November 5, 1991.
81. "What Optics Can Do For Neural Networks", K.M. Johnson. Tutorial presented at the Neural Information Processing Systems Annual Meeting, Denver, CO, December 2, 1991.
82. "Early Vision Zero-Crossing Spatial Light Modulators", D.A. Jared and K.M. Johnson, LEOS Summer Topical Meeting on Smart Pixels, Santa Barbara, CA, August 10, 1992.
83. "Analysis and Implementation of an Optical Processor Employing Cascaded VLSI/FLC Spatial Light Modulators and Smart Pixel Arrays", R. Turner, D.A. Jared, G.D. Sharp, K.M. Johnson, LEOS Summer Topical Meeting on Smart Pixels, Santa Barbara, CA, August 10, 1992.
84. "A 64 Neuron VLSI/FLC Device for Implementing the Delta-Rule Algorithm", C.C. Mao, K.M. Johnson, and M. Robinson, LEOS Summer Topical Meeting on Smart Pixels, Santa Barbara, CA, August 10, 1992.
85. "A 128 Fully Interconnected Optoelectronic Neural Network", L. Zhang, K.M. Johnson, Annual Meeting of the Optical Society of America, Albuquerque, NM, September 20, 1992.
86. "Large Scale Simulations of an Optoelectronic Neural Network", J.P. Sharpe, K.M. Johnson, Annual Meeting of the Optical Society of America, Albuquerque, NM, September 20, 1992.
87. Symposium on Optical Neural Networks, K.M. Johnson, Presider, Annual Meeting of the Optical Society of America, Albuquerque, NM, September 20, 1992.
88. "Ferroelectric Liquid Crystal Optoelectronic ART1 Neural Processor," T.P. Caudell, J.P. Sharpe, and K.M. Johnson, Annual Meeting of the Optical Society of America, Albuquerque, NM, September 21, 1992.
89. "Chiral Smectic Liquid Crystal Optical Phase Modulator", G.D. Sharp and K.M. Johnson, Annual Meeting of the Optical Society of America, Albuquerque, NM, September 21, 1992.
90. "Optically Addressed VLSI/FLC Bipolar Device for Optical Learning Machines". C.C. Mao, M. Robinson, and K.M. Johnson, Annual Meeting of the Optical Society of America, Albuquerque, NM, September 23, (1992).



91. "Microsecond-Switching Liquid-Crystal Tunable Optical Filter," Jian-Yu Liu, A. Sneh, and K.M. Johnson, Annual Meeting, Optical Society of America, Toronto, Canada, Oct. 4, 1993.
92. "Compact Optical-Correlator Design Using Multichip-Module Alignment Techniques," K.M. Johnson, D. McKnight, R. Turner, Y.C. Lee, W. Lin, Annual Meeting of the Optical Society of America, Toronto, Canada, October 4, 1993.
93. "Liquid-Crystal-On-Silicon Smart Pixel Device for the Optoelectronic Implementation of ART-1 Neural Networks," I. Bar-Tana, J. Sharpe, K.M. Johnson, T.P. Caudell, Annual Meeting of the Optical Society of America, Toronto, Canada, October 6, 1993.
94. "High-Voltage Electrical Circuitry for Fast-Switching VLSI/FLC Spatial Light Modulators," C.C. Mao, K.M. Johnson, Z.Y. Huang, Annual Meeting of the Optical Society of America, Toronto, Canada, October 7, 1993.
95. "CMOS Position Detectors for Peak Location," R.M. Turner, K.M. Johnson, Annual Meeting of the Optical Society of America, Toronto, Canada, October 7, 1993.
96. "Liquid Crystal Over Silicon Spatial Light Modulators for Optical Correlators," D.J. McKnight, K.M. Johnson, S.A. Serati, LEOS 1994 Summer Topical Meeting on Smart Pixels, July 11, 1994.
97. "Adaptive-Attenuating Spatial Light Modulator," I. Bar-Tana, K.M. Johnson, LEOS 1994 Summer Topical Meeting on Smart Pixels, July 11, 1994.
98. "CMOS Photodetector Array for Sequential Peak Location," R.M. Turner, K.M. Johnson, LEOS 1994 Summer Topical Meeting on Smart Pixels, July 11, 1994.
99. "High-Speed Tunable Liquid Crystal Optical Filter for WDM Systems," A. Sneh, K.M. Johnson, "LEOS 1994 Summer Topical Meeting on Smart Pixels, July 13, 1994.
100. "Adaptive Resonance Theory, Stack Altering and Self-Organizing Morphological Kernels," J.P. Sharpe, N. Sungar, K.M. Johnson, Proceedings of the Image Algebra and Morphological Image Processing V Meeting, 1994.
101. "Smart Pixel Devices Incorporating Liquid Crystal on VLSI Backplanes," K.M. Johnson, Photonics West Electronic Imaging Meeting '94, San Jose, CA, February 10, 1994.
102. "Liquid Crystal on Silicon-Microdisplays," K.M. Johnson, International Electronics Packaging Workshop on Display Technology, Aspen, CO, April 15-17, 1994.
103. "Volume Hologram Multiplexing Using Random Patterns," A. Lahrchi, V. Morozov and K.M. Johnson, Proceedings of the 1994 Optical Society of America Annual Meeting, October 3, 1994.
104. "Noise Limitation on the Storage Capacity of 3D Holographic Memory Systems," A. Lahrchi and K.M. Johnson, Proceedings of the 1994 Optical Society of America Annual Meeting, October 3, 1994.
105. "Two-Dimensional Sequential Peak Position Detector," R.M. Turner and K.M. Johnson,

Proceedings of the 1994 Optical Society of America Annual Meeting, October 5, 1994.

106. "Optically-Addressed Smart Pixel Array for Applications to Cancer Pre-Screening," I. Bar-Tana, D. McKnight and K.M. Johnson, Proceedings of the 1994 Optical Society of America Annual Meeting, October 5, 1994.
107. "Particle Image Velocimetry Fringe Processing Using an Image Subtracting, Optically Addressed Spatial Light Modulator," P. Barbier, J. Sharpe and K.M. Johnson, Proceedings of the 1994 Optical Society of America Annual Meeting, October 5, 1994.
108. "Chiral Smectic and Cholesteric Liquid Crystal Analog Optical-Phase-Modulator," J.E. Stockley, G.D. Sharpe and K.M. Johnson, Proceedings of the 1994 Optical Society of America Annual Meeting, October 6, 1994.
109. "Optoelectronics - From Wireless Communication to Flat-Panel Displays," Keynote Speaker, K.M. Johnson, URSI, Boulder, CO, January 14, 1995.
110. "Advances in Packaging LC Smart Pixel Systems," American Chemical Society, K.M. Johnson, ISHM Meeting, Atlanta, GA, February 9, 1995.
111. "Liquid Crystal Tunable Optical Filters," K.M. Johnson, ACS, Anaheim, CA, April 16, 1995.
112. "LCOS Smart Pixel Arrays," K.M. Johnson, URSI Meeting, Boulder, CO, April 17, 1995.
113. "Liquid Crystal Microdisplay Technology," K.M. Johnson, Advanced Research Project Agency Display Technology Review, Washington, DC, May 3, 1995.
114. "Components: Spatial Light Modulators," K.M. Johnson, Workshop on Holographic Storage by 3M National Materials Laboratory, Boulder, CO, June 15, 1995.
115. "Applications of Liquid Crystal on Silicon Smart Pixel Arrays," K.M. Johnson, OCS Workshop on Liquid Crystal on Silicon Arrays, Boulder, CO, June 28, 1995.
116. "Applications of Liquid Crystal on Silicon Devices to Pattern Recognition," K.M. Johnson, Conference on Lasers and Electro-Optics Pacific Rim, Chiba, Japan, July 13, 1995.
117. "Non-Display Applications of Ferroelectric Liquid Crystals," K.M. Johnson, Int'l Conference on FLC's, Cambridge, England, July 25, 1995.
118. "Continuously Tunable Liquid Crystal Filters," K.M. Johnson, OSA, Portland, OR, September 11, 1995.
119. "Phase Only Spatial Light Modulator Encoding," A. Lahrachi, K.M. Johnson and G. Sharp, Annual Meeting of the Optical Society of America, Portland, OR, September 11, 1995.
120. "Packaging and Planarization of Integrated Circuits and Microdisplays," K.M. Johnson, Annual Meeting of the Optical Society of America, Portland, OR, September 12, 1995.

121. "Planarization of Liquid Crystal on Silicon Devices," M.H. Schuck and K.M. Johnson, Annual Meeting of the Optical Society of America, Portland, OR, September 13, 1995.
122. "Pseudorandom Codes for Volume Holographic Storage Applications," K.M. Johnson, Optical Society of America Conference on Optical Memory and Optical Data Storage, Maui, HI, July 8-12, 1996.
123. "Holographic Digital Storage Beyond the Diffraction Limit is Possible," K.M. Johnson, Optical Society of America Conference on Optical Memory and Optical Data Storage, Maui, HI, July 8-12, 1996.
124. "Entrepreneurship in Optical Computing", K.M. Johnson, OSA Panel Discussion, Denver, Colorado, October, 21, 1996.
125. "Missiles to Mammograms", K.M. Johnson, BMDO Technology Applications Review, San Diego, California, January 16-17, 1996, Image Guided Medicine.
126. "High Resolution Full Color Micro Displays and Their Applications", ICO-17, Taejon, Korea, August 19-23, 1996.
127. "Broadband Beam Steering," J.E. Stockley, S.A. Serati, G.D. Sharp, P. Wang, K.F. Walsh and K.M. Johnson, 1997 Proceeding of SPIE, San Deigo, CA Vol. 3131, pg. 111-113, (July 30-31, 1997).
128. "Smart Pixel Array for Optical Processing of Cervical Smears," J.L. Metz, D.J. McKnight, R. Narayanswamy, R.J. Stewart, and K.M. Johnson, IEEE/LEOS Summer Topical Meetings, Keystone, CO, August 5-9 1996.
129. "Smart Pixel LCOS Device for Projection Display Systems," H. Schuck, D.J. McKnight and K.M. Johnson, IEEE/LEOS Summer Topical Meetings, Keystone, CO, August 5-9 1996.
130. "Integrated Assembly of Smart Pixel Arrays and Fabrication of Associated Micro-Optics," P.T. Kazlas, D.J. McKnight and K.M. Johnson, IEEE/LEOS Summer Topical Meeting, Keystone, CO, August 5-9, 1996.
131. "A CMOS Chip for the 3-D Optoelectronic Computing System," C.C. Mao, D.J. McKnight, D. Guarino, J.A. Neff and K.M. Johnson, IEEE/LEOS Summer Topical Meeting, Keystone, CO, August 5-9, 1996.
132. "Fast Nematic Liquid Crystal Fabry-Perot Filter for WDM All-Optical Networks," Y. Morita, J.Y. Liu, S.E. Gilman and K.M. Johnson, IEEE/LEOS Summer Topical Meetings, Keystone, CO, August 5-9, 1996.
133. "Optoelectronic Region of Interest Detection in Cervical Smears," R. Narayanswamy, D.J. McKnight and K.M. Johnson, 1996 International Topical Meeting on Optical Computing, Sendai, Japan, April 1996.
134. "Smart Pixel Array for Intelligent Image Sensing," R. Narayanswamy, J. Metz and K.M. Johnson, OSA Annual Meeting, Long Beach, CA, October 1997.

135. "Broadband Beam Steering," J.E. Stockley, S.A. Serati, G.D. Sharp, P. Wang, K.F. Walsh and K.M. Johnson, 1997 Proceeding of SPIE, San Diego, CA, July 30-31, 1997.
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137. "Integrated Assembly of Miniature Liquid-crystal-on-silicon Displays," P.T. Kazlas, D.J. McKnight and K.M. Johnson and S. Gilman, SID International Symposium Digest of Technical Papers, Boston, Mass, May, 1997.
138. "Liquid Crystal Fiber Phase Modulator", S.I. Wong, J.Y. Liu and K.M. Johnson, OFC Conference Technical Digest, 1997.
139. "Assembly Process Targets Mini LCD's," P.T. Kazlas and K.M. Johnson Electronic Engineering Times, pg. 33-34, 1997.
140. "Intelligent Data Elimination for a Rare Event Application" R.N. Narayanswamy, J.L. Metz and K.M. Johnson, 1998 Proceedings of Soc. Phot. Instr. Eng.
141. "CMOS Smart Photosensor Array for Optoelectronic Hit/Miss Transform Processing of Cervical Smears," J.L. Metz, A.R. Plezkun and K.M. Johnson, 1998 LEOS Conference Proceedings.
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144. "Applications of Liquid Crystals to optical information processing and projection display," K.M. Johnson, 11<sup>th</sup> International Topical Meeting on Optics of Liquid Crystals, Clearwater Beach, Florida, 2005.